

CLAIMS

1. Aluminium fluoride obtainable by treating a starting aluminium fluoride having a fluorine content not less than 90%, preferably not less than 95% relative to the stoichiometric, with an alkali metal derivative, preferably with an aqueous solution containing one or more alkali metal salts.
2. Aluminium fluoride according to Claim 1, in which the surface area of the starting aluminium fluoride is not less than 25 m²/g, and which starting aluminium fluoride consists substantially of the crystalline phase designated γ (gamma).
3. Aluminium fluoride according to Claims 1-2, in which the alkali metals of the salts that are used belong to Group I of the periodic table and are preferably selected from sodium and potassium and their mixtures, more preferably potassium.
4. Aluminium fluoride according to Claim 3, in which the anion of the salt is derived from an inorganic acid, preferably a strong acid.
5. Aluminium fluoride according to Claims 1-4, in which the concentration of the alkali metal salts in the aqueous solution is from 0.1 M to 0.0001 M, more preferably from 0.01 M to 0.001 M.
6. Process for preparing the aluminium fluoride according to Claims 1-5, in which a starting aluminium fluoride, having a fluorine content not less than 90%, preferably not less than 95% relative to the stoichiometric, is treated with an alkali metal derivative, preferably with an aqueous solution containing one or more alkali metal salts.
7. Process for preparing the aluminium fluoride according to Claim 6, in which the starting aluminium fluoride is treated by impregnation with an aqueous solution containing one or more alkali metal salts.
8. Process according to Claims 6-7, in which AlF₃, after impregnation, is treated to remove the excess solution, dehydrated at temperatures between 100°C and 150°C, preferably 100-130°C, and calcined in a stream of inert gas, at a temperature generally from 300°C to 450°C, preferably from 350°C to 400°C.

9. Use of the AlF_3 according to Claims 1-5 as catalyst.
10. Use according to Claim 9 in reactions of the Friedel-Crafts type, in reactions of halogen exchange and of addition of hydrogen halides on multiple carbon-carbon bonds.
11. Use according to Claim 9 in the reaction of isomerization of 123a to 123.
12. Catalyst comprising the aluminium fluoride according to any one of claims 1 to 5 as support.
13. Catalyst according to claim 12, comprising a chromium compound supported on the support.
14. Catalyst according to claim 12 or 13, comprising trivalent chromium
15. Catalyst according to any one of claims 12 to 14, comprising chromium and having a chromium content of 1-20 wt.%, preferably 5-15 wt.%.
16. Process for preparing the catalyst according to any one of claims 12 to 15, comprising the treatment of the aluminium fluoride according to any one of claims 1 to 5 with a solution comprising a catalytically active metal.
17. Process according to claim 16, wherein the solution is a solution of a chromium compound.
18. Process according to claim 17, wherein the chromium compound is a water-soluble chromium (III) salt.
19. Process according any one of claims 16 to 18, in which the treatment of AlF_3 with the solution comprising the catalytically active metal is carried out with a volume of a concentrated aqueous solution of a water-soluble derivative of the catalytically active metal less than or equal to the volume of the pores in the support.
20. Process according to any one of claims 16 to 19, in which the catalyst, after the treatment with the solution comprising the catalytically active metal, is dried and optionally the stage of impregnation and drying is repeated until the required quantity of metal is obtained in the catalyst.

21. Process according to any one of claims 16 to 20, in which the catalyst is calcined at temperatures from 300°C to 400°C, preferably from 350°C to 400°C, in a stream of inert gas, preferably nitrogen, then activated with anhydrous HF, gradually reducing the flow of inert gas until there is the desired concentration of HF in the gas mixture.

22. Process according to any one of claims 16 to 21, comprising the manufacture of aluminium fluoride according to the process of anyone of claims 6 to 8.

23. Process according to claim 22, wherein the treatment of the aluminium fluoride with the solution comprising a catalytically active metal is carried out after treating AlF_3 with the solution of alkali metal salts.

24. Use of the catalysts according to any one of claims 12 to 15 in reactions of gas-phase halogen exchange on halogenated organic compounds, fluorination of (H)CFC compounds with anhydrous HF, disproportionation of (H)CFC compounds or addition of HF to halogenated olefins.